



LEXSEE 815 F2D 686

In Re Gary E. Geiger \*

\* This opinion issued as an unpublished opinion on December 11, 1986. On request of counsel for appellant, it is now being reissued as a published opinion.

No. 86-1103

## UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

815 F.2d 686; 1987 U.S. App. LEXIS 200; 2 U.S.P.Q.2D (BNA) 1276

April 1, 1987, Decided

## PRIOR HISTORY: [\*\*1]

Appealed from U.S. Patent & Trademark Office, Board of Patent Appeals and Interferences.

## CASE SUMMARY:

**PROCEDURAL POSTURE:** Appellant patent applicant challenged a decision from the United States Patent & Trademark Office, Board of Patent Appeals, which affirmed appellee patent examiner's rejection of his patent application after finding that the claimed subject matter was obvious under 35 U.S.C.S. § 103 in view of various combinations of prior art.

**OVERVIEW:** Applicant's patent application was rejected by the examiner and affirmed by the Board of Patent Appeals and Interferences (Board) on the basis of obviousness. The Board claimed that under the existing state of the art, trying various combinations, one of which was the applicant's, the invention was obvious. The Board also held that applicant failed to refute the prima facie finding of obviousness. On appeal, the court reversed, concluding that obviousness was not established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. The court stated that, at most, the prior art made it obvious to try some combination of existing practices but not necessarily the applicant's. Because this was not the standard for obviousness established by 35 U.S.C.S. § 103, the court reversed.

**OUTCOME:** The court reversed the finding of obviousness because the standard for obviousness was not met where the application was based on a specific combination of existing techniques where many possible combi-

nations existed.

## LexisNexis(R) Headnotes

*Civil Procedure > Appeals > Standards of Review > Issues of Fact & Law*  
*Patent Law > Nonobviousness > Elements & Tests > General Overview*

*Patent Law > Jurisdiction & Review > Standards of Review > General Overview*

[HN1] Obviousness is a question of law based upon factual inquiries. For a conclusion of obviousness, the standard of review is correctness or error as a matter of law.

*Patent Law > Nonobviousness > Evidence & Procedure > General Overview*

*Patent Law > Nonobviousness > Elements & Tests > General Overview*

[HN2] Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination.

## COUNSEL:

Bruce E. Peacock, Betz Laboratories, Inc., argued for Appellant.

Robert D. Edmonds, Associate Solicitor, Office of the Solicitor, argued for Appellee. With him on the brief were Joseph F. Nakamura, Solicitor and Fred E. McKelvey, Deputy Solicitor.

## JUDGES:

Newman, Circuit Judge, Skelton, Senior Circuit Judge, and Archer, Circuit Judge. Newman, Circuit Judge, concurring.

## OPINIONBY:



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ARCHER

## OPINION:

[\*687] ARCHER, Circuit Judge.

This is an appeal from a decision of the United States Patent and Trademark Office (PTO) Board of Patent Appeals and Interferences (board), Appeal No. 606-09, affirming the examiner's rejection of all remaining claims, 43-63 and 65-67, in appellant's patent application, Serial Number 373,903 ('903), under 35 U.S.C. § 103. We reverse.

## OPINION

*Background*

The '903 application, filed on May 3, 1982, is directed to a method of inhibiting scale formation on and corrosion of metallic parts in cooling water systems by use of compositions containing (1) a sulfonated styrene/maleic anhydride (SSMA) copolymer, (2) a water soluble zinc [\*\*2] compound, and (3) an organo-phosphorus acid compound or water soluble salt thereof.

In its decision dated February 7, 1986, the board affirmed the examiner's rejections under 35 U.S.C. § 103, finding that the claimed subject matter would have been obvious in view of various combinations of references, but with reliance primarily upon U.S. Patent No. 4,209,398 issued to Li, et al. (Li), U.S. Patent No. 4,374,733 issued to Snyder, et al. (Snyder '733) and U.S. Patent No. 4,255,259 issued to Hwa, et al. (Hwa). n1

n1 Hwa was cited only with respect to dependent claims 47 and 49.

The Li patent discloses use in cooling water systems of scale and corrosion prevention compositions comprised of a polymeric component in combination with one or more compounds selected from the group consisting of inorganic phosphoric acids and water soluble salts thereof, phosphonic acids and water soluble salts thereof, organic phosphoric acid esters and water soluble salts thereof, and polyvalent metal [\*\*3] salts. Although the Li polymeric component may contain maleic acid and styrene monomers, there is no disclosure of the specific copolymer, SSMA, required in applicant's claims.

The Snyder '733 patent discloses a method for treating cooling water systems prone to scale formation by the addition of a composition comprised of an acrylic acid/lower alkyl/hydroxy acrylate copolymer and another polymeric component, which may be SSMA or a styrene/maleic anhydride (SMA) copolymer. The Snyder '733 patent notes that boiler and cooling water systems

share a common problem in regard to scale deposit formation and that use of SMA to prevent scale in boiler water systems is known.

The Hwa patent is directed to a method for treating boiler water systems that are prone to scale formation by addition of a composition comprised of SSMA and an organo-phosphorus acid compound.

The remaining references, cited with respect to certain dependent claims, contain no suggestion to use SSMA, the specific copolymer recited in the appealed claims.

Based upon the prior art and the fact that each of the three components of the composition used in the claimed method is conventionally employed in the art [\*\*4] for treating cooling water systems, the board held that it would have been *prima facie* obvious, within the meaning of 35 U.S.C. § 103, to employ these components in combination for their known functions and to optimize the amount of each additive. The board further held that data appearing in [\*688] appellant's specification, and supplemented by a declaration submitted pursuant to 37 C.F.R. § 1.132, provided insufficient evidence of nonobviousness to rebut the *prima facie* case.

*Issues*

1. Whether the board erred in finding that a *prima facie* case of obviousness was established.
2. Assuming that a *prima facie* case of obviousness was established, whether the board erred in finding that appellant's objective evidence with regard to unexpected results was insufficient to rebut that *prima facie* case.

*Analysis*

[HN1] Obviousness is a question of law based upon the factual inquiries mandated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 U.S.P.Q. (BNA) 459, 15 L. Ed. 2d 545, 86 S. Ct. 684 (1966). *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 796 F.2d 443, 447, 230 U.S.P.Q. (BNA) 416, 419 (Fed. Cir. 1986). [\*\*5] For a conclusion of obviousness, the standard of review is correctness or error as a matter of law. *In re Caveney*, 761 F.2d 671, 674, 226 U.S.P.Q. (BNA) 1, 3 (Fed. Cir. 1985); *In re DeBlauwe*, 736 F.2d 699, 703, 222 U.S.P.Q. (BNA) 191, 195 (Fed. Cir. 1984).

Appellant contends that the PTO failed to establish a *prima facie* case of obviousness and, consequently, that the board's affirmance of the examiner's rejections was erroneous. Appellant argues that the PTO's position represented hindsight reconstruction or, at best, established that it would have been "obvious to try" various combinations of known scale and corrosion prevention



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agents, including the combination recited in the appealed claims.

We agree with appellant that the PTO has failed to establish a *prima facie* case of obviousness. [HN2] Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. (BNA) 929, 933 (Fed. Cir. 1984). [\*\*6] We are convinced that the latter are not present here.

Ii does not suggest use of SSMA as its claimed polymeric component and does not require the presence of an organo-phosphorus acid compound or of a zinc compound. Ii notes that it is difficult to maintain a predetermined concentration of polyvalent metal ions, such as the zinc (II) ion, in alkaline cooling water, but states that its claimed polymeric component prevents the "polyvalent metals from becoming insoluble compounds and precipitating. . . ." Although Snyder '733 discloses use of SSMA, it is for the purpose of showing that it, or one of three other specifically recited copolymers, may be used in combination with yet another polymeric component, an acrylic acid/lower alkyl/hydroxy acrylate copolymer, to prevent scale formation. With respect to claims 47 and 49, Hwa does disclose the specifically-recited organo-phosphorus acid compound. It provides, however, no suggestion to add a zinc compound to its disclosed combination of SSMA and organo-phosphorus acid compounds, or to use SSMA in combination with an organo-phosphorus acid compound in the treatment of a cooling water system, where the characteristics may significantly [\*\*7] differ from those in Hwa's boiler water system. Hwa also provides no suggestion that SSMA could prevent precipitation of the zinc (II) ion in alkaline cooling water in the manner ascribed to the polymeric component of Ii.

At best, in view of these disclosures, one skilled in the art might find it obvious to try various combinations of these known scale and corrosion prevention agents. However, this is not the standard of 35 U.S.C. § 103. *In re Goodwin*, 576 F.2d 375, 377, 198 U.S.P.Q. (BNA) 1, 3 (CCPA 1978); *In re Antonie*, 559 F.2d 618, 195 U.S.P.Q. (BNA) 6 (CCPA 1977); *In re Tomlinson*, 53 C.C.P.A. 1421, 363 F.2d 928, 150 U.S.P.Q. (BNA) 623 (CCPA 1966).

Because we reverse on the basis of failure to establish a *prima facie* case of obviousness, we need not reach the issue of the sufficiency of the showing of unexpected results.

REVERSED.

## CONCURBY:

NEWMAN

## CONCUR:

[\*689] NEWMAN, Circuit Judge, concurring.

I agree in the court's result, but respectfully do not share the view that the PTO did not present a *prima facie* case that the claimed invention would have been obvious in terms of 35 U.S.C. § 103. [\*\*8] I write separately because the determination of whether a *prima facie* case of obviousness has been made is a critical decision that controls the evidentiary procedures and burdens before the PTO.

The claims are directed to a three-component system to control scale and corrosion in cooling water systems, the components being (1) zinc ions, (2) a copolymer of sulfonated styrene and maleic anhydride (SSMA), and (3) an organo-phosphorus acid or salt. A three-part system is described in the Ii reference for the same purpose, but differs from applicant's system in that the copolymer component (2) is different. There is no teaching of SSMA in the Ii reference. However, the Snyder '733 reference teaches SSMA in combination with other polymers to control scale in cooling water systems. The use of SSMA in cooperation with phosphonate is known to reduce scale and sludge in boilers (Hwa). Hwa does not use zinc ions, and it is known that zinc ions produce undesirable results in boilers, but the Ii reference states that it was known to use zinc ions alone or in combination with organo-phosphorus acids or salts to inhibit corrosion in cooling water.

Thus each of Geiger's three components has [\*\*9] been described, separately or in partial combination, for use in cooling water systems. In my view, it would have been *prima facie* obvious to replace the polymer component of Ii with the known scale inhibitor SSMA, or to add an organophosphorus compound and zinc ions, both known corrosion inhibitors, to SSMA to achieve both scale and corrosion resistance in cooling water systems. *In re Kerkhoven*, 626 F.2d 846, 850, 205 U.S.P.Q. (BNA) 1069, 1072 (CCPA 1980); *Minnesota Mining & Manufacturing Co. v. Ansul Co.*, 213 U.S.P.Q. (BNA) 1024, 1033-34 (E.D. Wis. 1981). The Board so held.

The applicant, in rebuttal of the PTO's *prima facie* case, argued that his three-component system exhibits superior properties, and that the superiority was not obvious in view of the cited references. In support of this argument the applicant relied on experimental data in the specification.

The specification contains data on the corrosion/scale

control capability of various combinations of components, including data comparing the applicant's three-part system containing SSMA with other three-part systems containing other preferred scale-preventing polymers of the prior [\*\*10] art. These data showed significant superiority of applicant's system; this was not disputed. The Board nevertheless held that the prima facie case was not rebutted because the applicant did not include data showing the properties of SSMA alone, stating that "the superior performance of such compositions may be due to the superiority of SSMA vis-a-vis the other scale-preventing copolymers."

I agree with the Board to the extent that it would have been of scientific interest to include such data. However, as a matter of law I believe that the applicant's showing was reasonable and sufficient. He complied with the requirement that the comparative showing "must be sufficient to permit a conclusion respecting the relative effectiveness of applicant's claimed compounds and the compounds of the closest prior art," *In re Payne*, 606 F.2d 303, 316, 203 U.S.P.Q. (BNA) 245, 256 (CCPA 1979), and must "provide an adequate basis to support a legal conclusion of unobviousness." *In re Johnson*, 747 F.2d 1456, 1461, 223 U.S.P.Q. (BNA) 1260, 1264 (Fed. Cir. 1984). The applicant demonstrated the exceptional corrosion inhibition achieved with his three-part system in [\*\*11] comparison with systems containing the known corrosion inhibitors zinc ion and organophosphorus compounds. He also compared his combination with systems containing other known polymeric scale inhibitors such as those taught by Li, and demonstrated that those systems did not provide the improvement in corrosion and scale control achieved with the SSMA combination. He also demonstrated that neither polymaleic [\*690] anhydride nor sulfonated polystyrene had the same effect on corrosion resistance as did the SSMA copolymer.

Applicant compared his system with the most relevant prior art. It is not required that the claimed invention be compared with subject matter that does not exist in the prior art. The applicant is not required to create prior art, nor to prove that his invention would have been obvious if the prior art were different than it actually was.

The Board also upheld the examiner's additional rejection that it would have been obvious to add zinc ion to the two-component SSMA/phosphonate system of Hwa. The Hwa system is for the reduction of scale and sludge at the high temperatures of steam boilers, and it was uncontroverted that zinc ion is not usable at high temperatures. [\*\*12] Applicant provided data showing that the Hwa system is relatively ineffective in a cooling system. The Board did not contradict this position on its scientific merits.

The applicant compared SSMA/phosphonate (Hwa) alone, SSMA/zinc, and phosphonate/zinc, with his three-component system, and achieved results that the Board held showed "superior performance." These results are sufficient in themselves to rebut a prima facie case of obviousness. See *In re De Blauwe*, 736 F.2d 699, 705, 222 U.S.P.Q. (BNA) 191, 196 (Fed. Cir. 1984).

Turning to the rejection on the breadth of the claim language, the limitations in the claims appear to be reasonably commensurate with the disclosure. Although I do not agree with the applicant that it is incumbent on the Commissioner to offer "technical evidence", applicant's specific examples are illustrative of the limitations described in the specification, and are not in themselves further limitations. *In re Johnson*, 558 F.2d 1008, 1017, 194 U.S.P.Q. (BNA) 187, 195 (CCPA 1977); *In re Goffe*, 542 F.2d 564, 567, 191 U.S.P.Q. (BNA) 429, 431 (CCPA 1976).

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